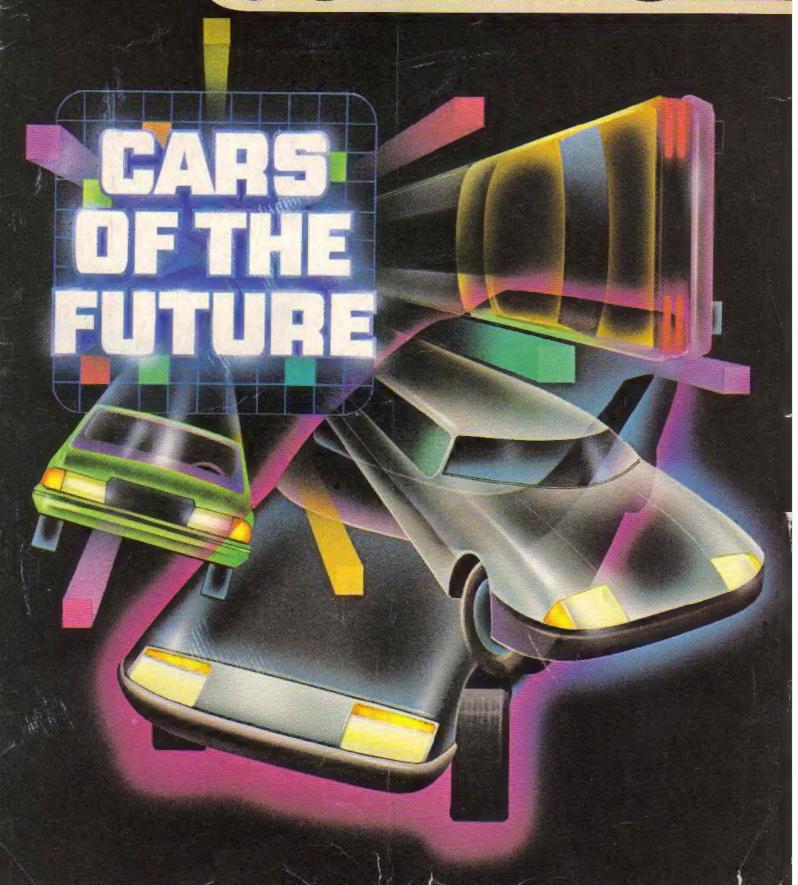
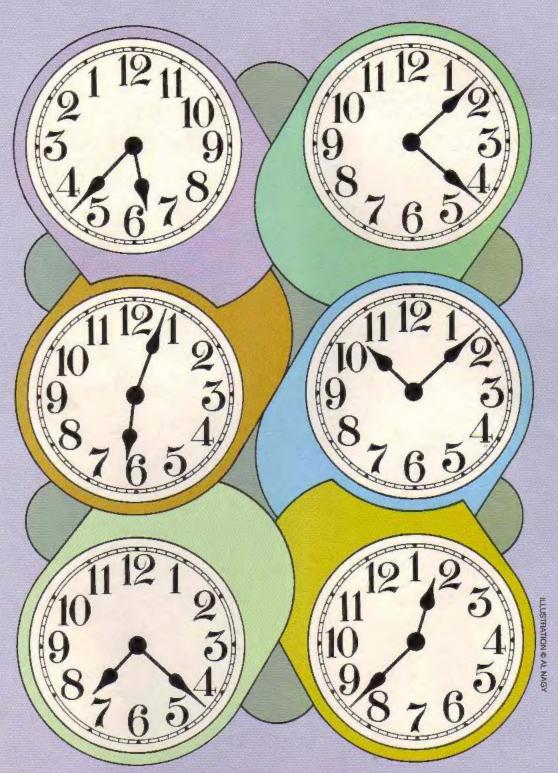
A Science Magazine from CTW, the Creators of Sesame Street.

September 1984





#### Do You Have the Time?

If you do, then try this timely puzzle. Only one of these clock faces is absolutely correct. Can you figure out which one it is? Be careful! This puzzle isn't as easy as it looks. So don't get "ticked" off if it takes you some time to solve it. The answer is on page 35.

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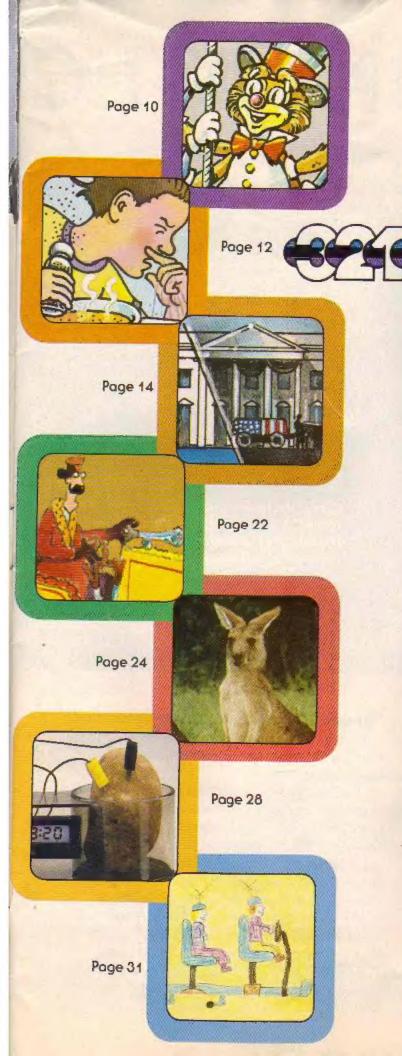
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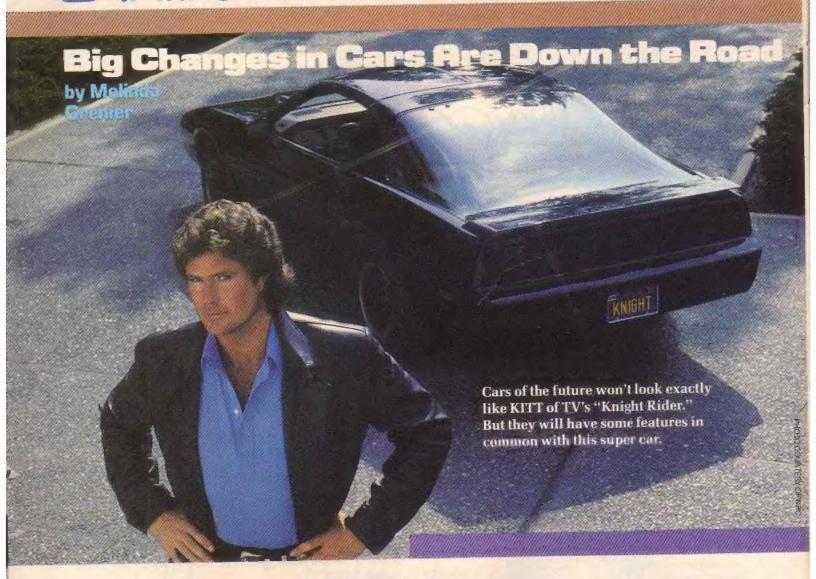
- 4 Driving Into the Future:
  Big Changes in Cars Are Just
  Down the Road
- 14 ESP: Fact or Fiction?
- 18 Concentration: Fun with ESP
- 22 List of the Month: Car Capers
- 24 What's Up Down Under: A Look at Australia's Unusual Animals

#### Plus Our Regular Departments

- 10 Factoids
- 12 Any Questions?
- 19 The Bloodhound Gang: The Case of the Missing Watch
- **28** Coming Attractions
- 31 Mail
- 32 Extra!
- 35 Did It!
- **36** Contact Lens

Cover Illustration © Stanislaw Fernandes

# DRIVING INTO THE



Michael Knight, star of the TV series "Knight Rider," has a very unusual friend—a car named KITT. KITT helps Michael to escape from his enemies by sending out clouds of smoke, leaping over roadblocks or blasting them with its laser power pack. KITT also talks to Michael, and Michael talks back. In fact, Knight can start up many of KITT's controls just by speaking a command.

Of course, the only place you'll find KITT today is on the TV screen. But by the time you're old enough to drive, auto experts say your car will be able to do some of the things KITT does. And by today's standards, these things are pretty amazing. One thing is certain, though. Unlike KITT—which can drive itself—future cars will still need you behind the wheel.

#### "Beep! Please Repeat Your Command!"

The most exciting—and different—features of the cars of the 1990s will be their amazing electronic equipment.

"Cars in the future will have at least two or three microcomputers," Joe Ziomek told 3-2-1 CONTACT. He's an engineer with TRW, Inc., a company that makes electronic equipment for autos.

One computer in particular will be a real lifesaver. It will make sure the car's engine, brakes, and gear shifting are all working smoothly.

Other tiny computers will take care of your comfort and convenience. You'll use one of them to program the radio station to turn on your favorite station automatically when you enter the car. The computer will also remember your favorite seat postion as soon as you sit down.



By the 1990s, cars may look something like this experimental model that Ford engineers are building.



To keep everything working smoothly, all your car's computers will have to communicate with each other—and with you as well. If one computer develops a problem, it will send an electronic signal to the others. This warning system might even use a human-like voice to tell you that a headlight isn't working.

In fact, the computer's electronic voice will be a big talker. It can announce how fast you're traveling, how much fuel you have left, and even how many miles remain to your destination.

But before you get there, you may discover a new problem. Autos in the 1990s may have a radar system that is something like the one in KITT. Placed at the front and rear, the radar would blip if there's a strange object lying on the road. The radar system would connect by computer with the brake system and could even stop your car before you run over the object.

However, engineers say the radar system >>>

Many autos of the future will be small like this red one.



You may be driving a sports car like this one a few years from now.



This is what a big family automobile could look like in the future. It will seat five people.



PHOTOS COURTESY OF FORD MOTOR CO

isn't quite foolproof—yet. It can't tell whether the object ahead is another car that's stopping suddenly or only a tree growing near a curve you're about to go around! This problem may take years to solve.

#### Video Dashboards

To help make them safer, future cars will have a surveillance system that's a little like the one KITT uses. A video camera near the back bumper would take the place of a rear-view mirror. This camera will send a clear picture of everything behind you to your car's video display screen on the dashboard. And seeing what's back there will stop you from crunching a 10-speed bike or other type of human-powered vehicle as you leave the driveway.

Besides the rear-view video screen, some cars may have another screen as well. It could replace all the instruments found on today's dashboard. If you wanted to play the radio, for example, you would just push a button. The image of a radio dial with glowing spots for each station would appear on the screen. To change stations, you would just touch the correct spot.

The video screen could even save you from getting lost while driving. To help you find your way around, it could link your car with a satellite in space. Your car would first send signals to the orbiting satellite to pinpoint your location. Then you would push a button—and presto—a map appears on the screen. Your car's location would appear on the map as a little dot of light. And as you drive along, the video screen might even help you choose the best road to get where you are going.

The satellite could also help to rescue you if you're in trouble. You could push a button and send it a special signal. With the satellite relaying the signal to the nearest police or service station, help is soon on the way.

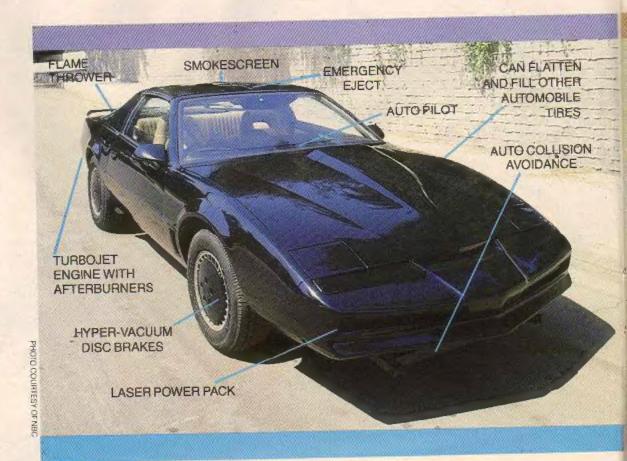
Tomorrow's car will be different in still another way. You won't be seeing all of those dashboard buttons. To control your





Left: With a map like this appearing on your dashboard, you won't have to worry about getting lost. It will relay information from a satellite about where you are and where you're going.

Here are some fabulous features that are on KITT. Compare them to the features on a car engineers are designing (right).



electronic gadgets, you could buy a car that works on voice commands instead. You could speak into a tiny microphone near the driver's seat. The mike would send your command to a computer programmed to recognize your voice.

But wait a minute! The voice command system might actually cause some unexpected problems. Imagine having a normal conversation that might suddenly stop your car just because you said the word, "Stop." Most likely, the computer would have to be programmed to respond only to commands that are repeated at least once such as, "Turn my lights off."

But what if your sister wanted to drive your car? Or what about a parking lot worker? Then what? Will the car still work? Engineers hope to solve the problem of how many voices the computer will be able to recognize—and obey.

#### **Small Wonders**

Most cars in the future will be lighter and more fun to drive than today's models. "They will have less steel in their engines and bodies and more lightweight aluminum and plastic," says Martin Anderson, an expert on future cars.

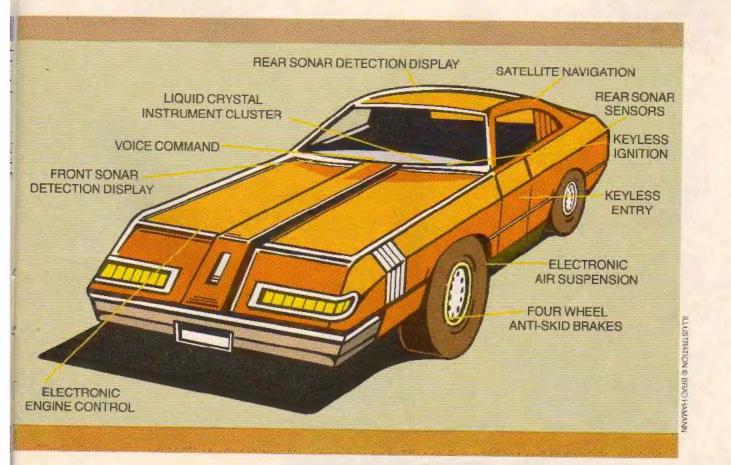
Of course, the plastic will be a special extrastrong kind that won't dent or crack. Some engines may even have ceramic parts, made from the same material that some cooking pots are now made from.

The shape of future cars will be different, too. They'll be rounder and smoother so they can cut through the air like an airplane. This shape will make them go much further on each gallon of fuel. Autos will probably average about 50 miles per gallon, compared to about 25 today.

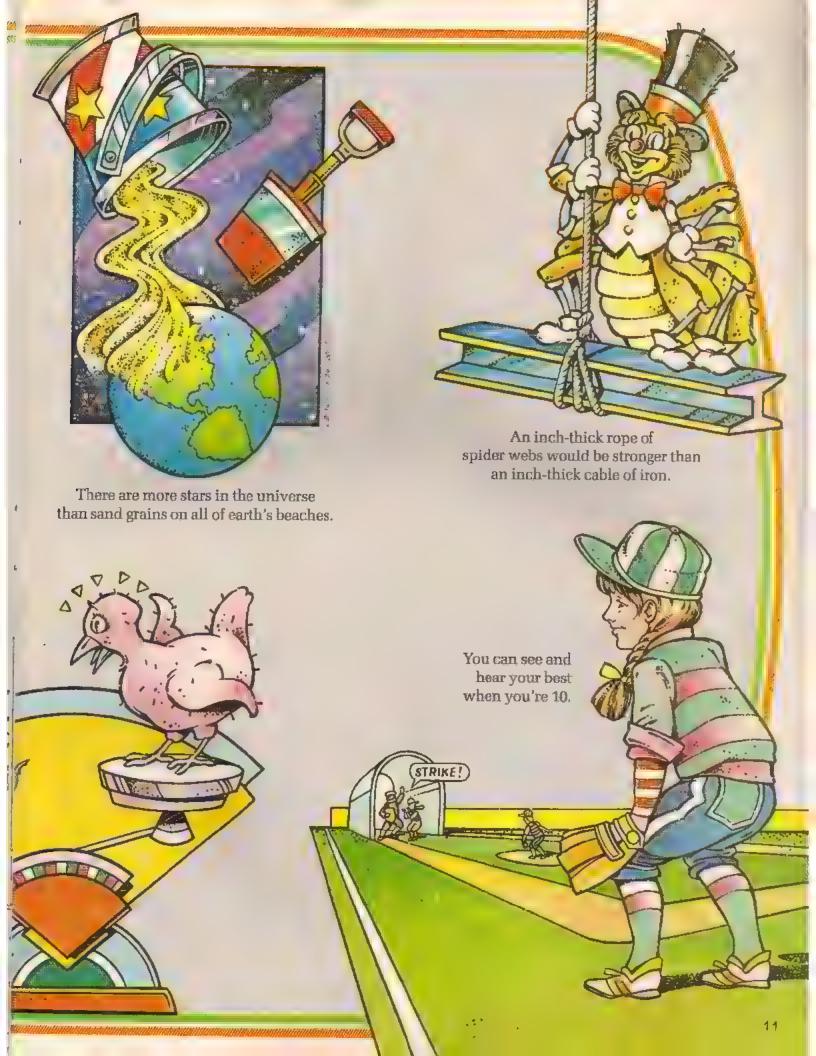
Some cars may even run on liquid alcohol made from coal, grains, or sugar cane. A few cars in the future might run on natural gas—the same fuel that cooks your food on a gas stove or heats your home.

Most families in the 21st century will still need cars that hold at least four people. But some auto companies are developing very small cars to carry only one or two passengers. You might drive one to school or on other short trips. These tiny cars could get up to 75 miles per gallon. But unlike KITT which can go from zero to 60 miles an hour in less than one second, these cars won't be very fast.

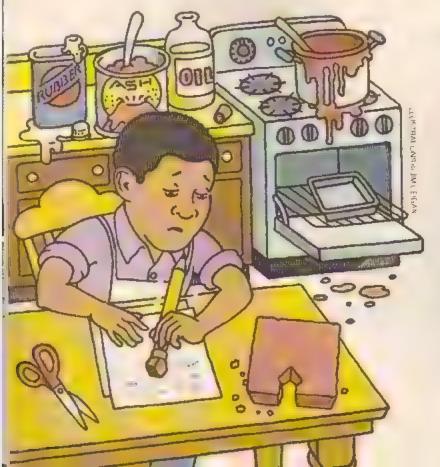
But little or big, the cars of the future will have one special advantage. They won't cost as much of your salary as today's models. And maybe in one way they'll be even better than KITT. At least future cars won't cost \$11,400,000—the price of TV's wonder car.











Question sent in by Julie Holzinger, Stone City, IA.

How gre ergsers made? Now you see it, now you don't -thanks to erasers! These cleaners are made from two main types of ingredients—powder and rubber.

In the factory, the powders and rubber are mixed together into a globby goo. Then the eraser goo is baked at very high temperatures. The heat turns the gooey mass into a firm solid. The solid eraser can then be cut into any shape.

The powders in erasers are unusual. One powder called pumice (PUM-is) is finely ground volcanic rock. It makes the eraser rough so it cuts the paper fibers and helps remove what you write.

Another powder is factice (FAC-tis). It comes from vegetable oils. Factice helps the eraser crumble into eraser dust. Without it, the mark you want to erase would just smear.

The rubber part of the eraser cushions all that rough scraping. That way, you don't erase a hole through the paper. You can pick up your pencil and start all over again.

Question sent in by Jennifer Miller, Murphysboro, IL.

Do you have a question that no one seems able to answer? Why not ask us? Send your question, along with your name, address, and age, to:

Any Questions? 3-2-1 CONTACT P.O. Box 599

#### Why do you close your eyes

when you sneeze? You don't have a choice! Your eyes close automatically when you sneeze. It's something you do without thinking —like blinking or breathing.

When you are about to sneeze, a nerve in your nose sends a message to your brain. Then, the brain sends a message to your eyelids. They slam shut and form an airtight shield over your eves as you AH-CHOOOO!

It's a lucky thing that your eyes close, too. When you sneeze, you push a lot of air out of your body with great force-up to 100 miles per hour. If you kept your eyes open, you could strain the muscles that keep your eyes in place.

By closing your eyes, you also keep the germs that blow out of your nose from getting into your eyes. It's one way your eyes could become infected. And that's nothing to sneeze at! Question sent in by Nicole West, Berwick, PA.



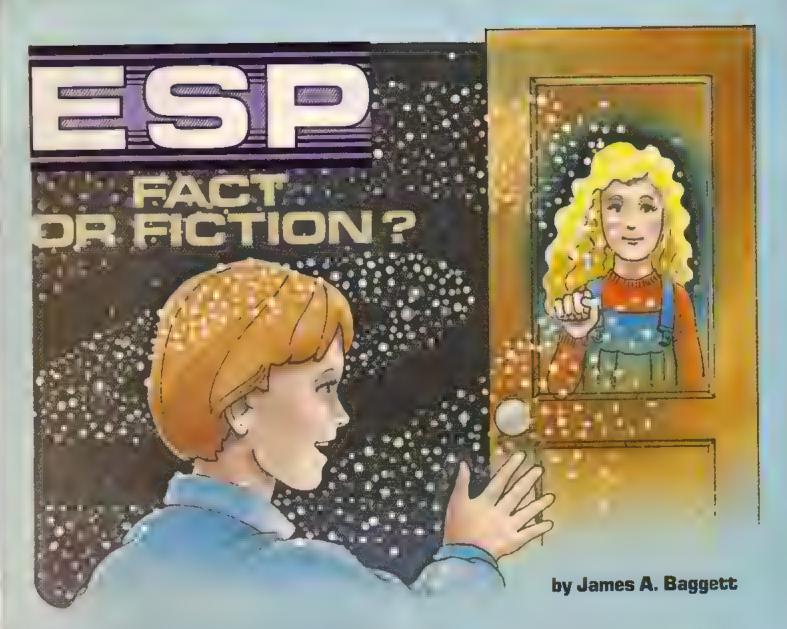
#### How does your voice travel through telephone wires?

When you talk into your telephone, a gadget in the receiver changes the sounds of your voice into electrical signals. The signals then travel out through the telephone wires to cables underground.

All the calls from other people in your neighborhood travel through these cables. too. The cables bring all the phone calls from your area to your local telephone company. There, a computer gets into the act. It sorts out where calls go according to the number you dialed. If your call is local, signals might go over wires to a nearby phone. If it's long distance, the signals could be beamed up to a satellite and back down to earth thousands of miles away.

When the electrical signals get to the person you call, the phone changes them back into sound waves. Then your friends at the other end of the line can understand what you're saying! Question sent in by Shelley Attales, Ville Platte, LA.





Do you sometimes know who is at the door before you open it? Do you ever get the feeling that you know exactly what a friend is thinking? Has something you dreamed ever come true?

If you have, you are not alone. Most scientists would probably say it was a lucky guess or just chance. But there are some people who think you may have been experiencing some sort of extra-sensory perception. Or ESP for short.

These days you hear a lot about ESP. In many places, police officials are asking people who say they have ESP to help locate missing persons. The U.S. government is doing research into ESP. And some people are even using it to try to predict changes in the stock market!

But over the the years, scientists have been baffled by ESP incidents. After all, it's not something you can weigh, measure, or examine under a microscope. And no one has been able to prove that there is such a thing as ESP. It is still an unsolved mystery. So most scientists are still waiting for the scientific evidence that ESP exists.

#### **Unsolved Mental Mysteries**

The scientists who are doing research into ESP have divided it into three areas. The first is called precognition (pree-cog-NISH-en). That's a big word for knowing what's going to happen before it does. It's the ability to predict the future. Scientists who study ESP say that the most common kind of ESP experience is a flash from the future—especially in a dream.

One of the most famous cases involved Abraham Lincoln. "Honest Abe" had a dream one night that haunted him. It bothered him so much that he wrote about it in his diary.

Lincoln dreamed he could hear people crying in the White House. He wandered into one room and found a coffin with a dead body inside.

"Who is dead in the White House?" he asked

a guard.

"The President," replied the guard. "He was killed by an assassin."

President Lincoln woke from his dream. He didn't sleep anymore that night. He was strangely haunted by it. Just 17 days later the President was killed by an assassin's bullet.

Another kind of ESP is called telepathy (te-LEP-a-thee). It is the ability to communicate mind to mind. With telepathy people are supposed to be able to send someone a thought or pick up what someone else is thinking. Telepathy is even supposed to happen while you're dreaming. Here is a true story about a woman who claims to have the power of telepathy.

One day a young man stopped at a restaurant to get a cup of coffee. As he was drinking it, two chocolate-covered donuts behind the counter caught his eye. He thought about how much he would like to eat them. The waitress's back was to him so she could not see his face. But she

turned and picked up a plate. Next she picked up the donuts from the assortment and put them on the plate. Then she set them in front of the young man. He was amazed. The waitress just laughed and said, "This is what you want, isn't it?"

The last kind of ESP is called clairvoyance (klare-VOY-ance). Clairvoyance is the ability to tune into events or objects at a distance—to see what is going on without being anywhere near. It's like using X-ray vision to see through a brick wall.

Not long ago some researchers performed this experiment: A person got into a car and started to drive around with no destination. With him in the car were a small computer and a box full of envelopes. On each envelope was a number. The driver used the computer to choose a number at random. The computer chose the number 13. Then the driver reached for the envelope that had the number 13 written on the

Did Lincoln's dream show he knew what would happen to him?



outside. He opened it up. The message told the driver what spot to drive to.

Meanwhile inside a lab, a person who claimed he was clairvoyant, tried to figure out where the man was driving. He concentrated and concentrated. An image appeared in his mind. He described the picture he saw. It was the spot that the computer had directed the driver to go to.

#### Holes in the Story

Of course, the three ESP experiences don't prove that ESP exists. Scientists can poke holes in all of the stories. The waitress could have been playing a trick. She could have given every customer chocolate donuts, for example. Lincoln's dream could just have been a nightmare that became tragically real. And it might have been just a lucky guess on the part of the person who said he was a clairvoyant.

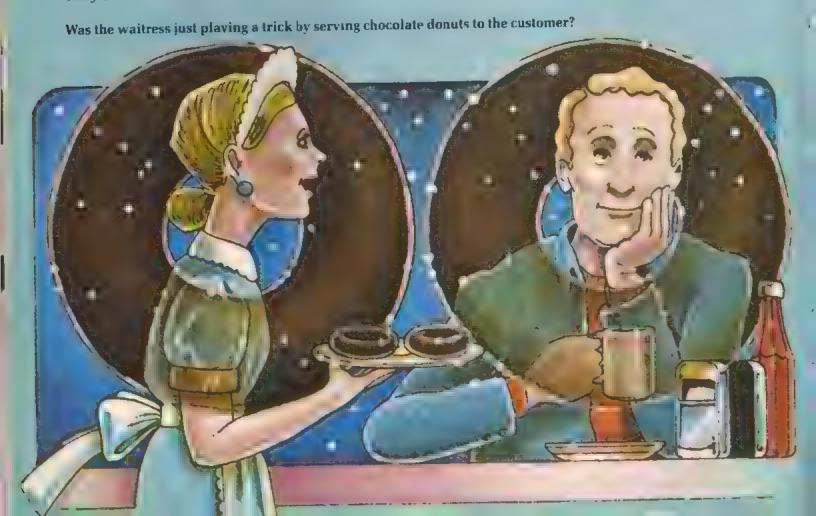
That's why scientists want absolute proof that ESP exists. They want people with ESP to be able to repeat experiments over and over again in the laboratory. Scientists say the experiments must be done perfectly and very scientifically. They cannot be done in a careless fashion.

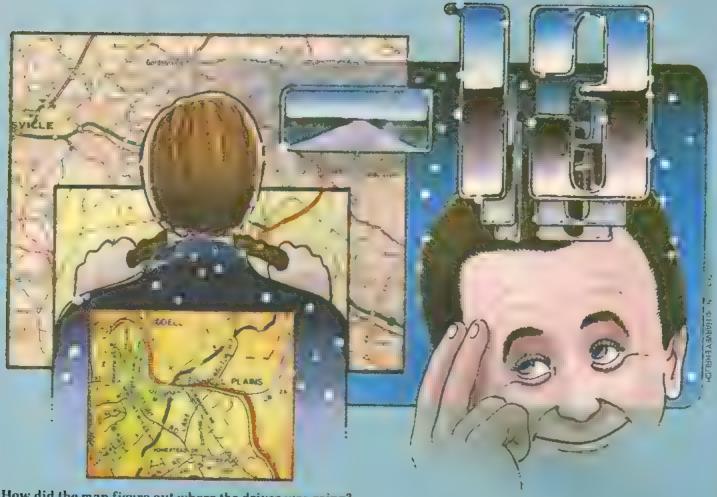
There can be no room for error, luck, tricks, or guesses. Computers are a big help in performing tests because they leave little room for error or chance. They help keep track of scores. And they record important information quickly and accurately.

Dr. Roy Hyman has been looking for errors in how ESP tests are given. Recently, the professor of psychology studied the results of 43 different ESP experiments.

"I couldn't find one test that was perfect or that proved ESP exists," he told 3-2-1 CON-TACT. "I don't know if I believe in ESP. But I'm open-minded about it. It's just that as long as people are going to test it, I'd like them to do it correctly." And so far, the tests for ESP seem to be full of holes.

James Randi is another person who is interested in how scientists test for ESP. Mr. Randi earns his living as a magician. He is also a critic of ESP tests. Recently he sent two magicians to a university where ESP tests were taking place. The two magicians passed the tests with flying colors. The test-givers were convinced that the two men had ESP. But then the truth came out. The magicians had used tricks





How did the man figure out where the driver was going?

to fool the researchers. The "foolproof" test wasn t foolproof after all.

Mr. Randi thinks that some researchers want ESP experiments to work so much that they give clues to the test-takers - without meaning to And Mr Randi also thinks that some people who claim to have ESP are tricksters themselves. They are out to fool the public. Even scientists can be fooled, Mr. Randi points out.

"I'm skeptical about ESP," says Dr. Marcello Truzzi. Dr. Truzzi teaches at Eastern Michigan University, "People who claim they have ESP should be able to prove it's true. They need to have very strong evidence. It's up to them to prove it exists not the scientist." Dr Truzzi thinks the key to proving ESP stor.es is to have "truly adequate, respectable experiments" And so far, no one has been able to do so.

#### The father of ESP

In the 1930's, a man named Dr. J B. Rhine wanted to try to prove that ESP exists. He made up an ESP test with ordinary playing cards. He asked people who thought they had ESP to

guess the order of a deck of cards. He did this 85,724 times!

Many of the people were able to say what the order of the cards was without looking at them. Dr. Rhine thought that this proved ESP existed.

Most scientists then and now say that Dr. Rhine's experiments were not done carefully enough. They say he shouldn't have shuffled the cards by hand because he could have made mistakes in the testing. He may have helped the test-takers without meaning to-because he wanted the results to work out in favor of ESP.

But scientists still don't agree about whether or not there is such a thing as ESP. They are still learning a lot about the subject. Will ESP ever be proven to exist? No one knows for sure. But many people agree that the subject and the tests need to be studied more thoroughly.

Professor Paul Kurtz says, "People need to question what they see and hear. And they need to remember that the proof always rests on the person who claims to have ESP" Until ESP is actually proved to exist, most scientists agree that it's only in one's imagination.

# CONCENTRATION Fun with ESP

Here are some tests that are similar to the ones people use to check for ESP. All you need is a deck of cards (remove the jokers), a pencil, a friend, and the chart on this page. You might want to try each of these experiments several times to see how the results change.

#### **Test Number 1**

Shuffle the deck of cards Place them face down on the table between you and a friend. Take the top card off the deck without looking. Then put it face down next to the pile. Concentrate, Now say whether you think it is a black or a red card. Your friend writes down your answer under prediction 1 on the chart. Go through the deck of 52 cards the same way.

Next go through the deck again in the same order, but this time look at the cards. Mark down in the "actual" column whether the card was really black or red. Add up the number you got right. Just by chance most people would get about 26 cards right. If you get more than 26 right—and on several tries—ESP experts would say you may have a special ability to tell what the cards are.

#### Test Number 2

Shuffle the cards and try the same kind of guessing game again. But this time, instead of colors, you will guess the suit—hearts, diamonds, clubs or spades—of the cards. Have your friend record your predictions again. Then go back to find the actual answers. In this test, most people would get about 13 cards right by chance. Any more—on several tries—could mean a chance of ESP.

#### Test Number 3

In this last test, you will pull the cards and guess whether each is an ace, 2, 3, 4, 5, 6, 7, 8, 9, 10, jack, queen or king. It's much harder to get these right. So ESP experts say that any more than four correct guesses on several tries—is more than just chance.

#### What's the Story?

Even if you get above average scores on these tests, most scientists would say that you still can't prove you have ESP. It could still be just chance. There are also ways to cheat on tests like this. Can you think of any? Can you also see how answers might be given to the guesser by mistake?

#### **ESP Recording Sheet**

P	rediction	Actual	Prediction	Actual	Prediction	Actual	Predictio	n Actual
1			14		27		40	
2			15		28		41	
3			16		29		42	
4			17		30		43	
5			18		31		44	
6			19		32		45	
. 7			20		33		46	
8			21		34		47	
9			22		35		48	
10			23		36		49	
11			24		37		50	
12			25		38		51	
13			26		39		52	



# The Case of the Missing Watch

by Michael J. Dayton

The day was going to be hot—really hot. The temperature had already inched past 90 degrees—and it was barely 10 a.m. Only a lunatic would mow the lawn today.

But that's exactly what Skip had just finished doing when Ricardo and Vikki rode up. The two shook their heads in amazement. Some of Skip's odd habits still surprised them.

"Hey Skip," Vikki called out. "We're riding over to Horton's to get a new battery for my watch. Want to ride along?"

"Sure," said Skip as he grabbed his bike. In five minutes the Bloodhound Gang reached Mr. Horton's shop.

Everyone in town knew "Big Ben" Horton. If a

watch ran too fast or too slow—or it stopped altogether—Big Ben was the man to see. He'd been in the business so long that not even he could remember when he first opened shop. The years he'd spent bent over his workbench had left him slightly stoop-shouldered. His large potbelly was ample proof that when he put down his work tools, he usually picked up some cookies.

"Good morning," Big Ben said, looking up from his work.

"Big Ben, I think this hot weather killed my watch," Vikki said. "I think it needs a new battery. Do you have one that fits?"

"Sure I've got one," he answered. "Give >>>

me your watch. I'll put it in for you."

She handed him the watch, and he went to work. He continued talking as he installed the

new battery.

"Do you know what else I have today?" Big Ben asked. "Problems, that's what I've got. I just lost an antique watch worth hundreds—maybe thousands—of dollars!"

"What happened?" Skip asked.

"Last Monday, someone brought in a pocket watch for repair. It was a beautiful piece. I knew immediately it was worth a lot. The watch reminded me of a pocket watch my father once owned. After I repaired it, I went for a picnic in the park. Like a fool, I took the watch along. I pulled it out once, just to admire it. I noticed it was still losing time—about an hour a day.

#### Meeting Time Draws Rear

"I was going to repair it as soon as I got back here. But somewhere along the way, the chain it was on broke. I went back to look for it, but it was nowhere in sight. I must have lost it in that big grassy field up there."

"What did you do then? Did you tell the

owner?" asked Skip.

"No, he's out of town until tomorrow," Big Ben replied. "I placed an ad in the newspaper. The watch still didn't turn up." Big Ben groaned. "If I don't find that watch, I'm ruined!"

"Did anyone at all call you about your ad?"

Vikki asked.

Big Ben frowned. "Only some crackpot. He claimed to be a professional dowser. He told me that he could find the watch with his divining rod. I told him he was nuts. But he said if I changed my mind, I should meet him in the park."

"I don't follow you," Ricardo said. "What in

the world is a dowser?"

"Dowsing is a special power that some people claim to have," Skip explained. "Dowsers use a wishbone-shaped rod to search for water or precious minerals."

"Is it like ESP?" asked Vikki.

"Not really," replied Skip. "People who say they have ESP use their minds to locate objects. People who claim to be dowsers use a stick to find what they are looking for." "Right, I've seen them in old western movies," Ricardo said. "Somebody walks around with a bent willow stick. Suddenly it starts shaking and points to the ground. The townspeople dig a well, hit water, and live happily ever after."

"Well. we all know it sounds pretty silly, and not at all scientific," Vikki said. "But at this point, who knows? Maybe it's worth a try. Big Ben, who was this person, and when are you supposed to meet him?"

"Now let's see....He said to meet him at noon. His name was...Morris...Morris Drinkwater."

The Bloodhound Gang groaned. "We know Morris pretty well," muttered Ricardo.

"Yeah, he's famous for trying to get famous," Skip added. "He's tried every scheme in the book to get his name in print. Once he claimed to have some aluminum Indian pottery. It turned out to be hubcaps off an old Ford."

Vikki paid Big Ben for the new battery. Then she glanced at her watch. "Big Ben, it's almost noon. Why don't you stay here and watch your store. We'll go meet Morris Drinkwater at the park. If he's got that watch—and I'll bet he does—we'll get it back for you."

#### Morris Meets the Gang

The Bloodhound Gang hurried to the park. When they arrived, Morris was already there leaning against his pickup truck. He was wearing shorts and a T-shirt. And for some reason, he had a feather stuck underneath his headband. It made him look like a used chicken salesman.

The smug look on Morris's face disappeared when he saw the Gang approaching. He scowled and said, "Well if it isn't the Beagle Bunch. Say, I'm busy. Why don't you make like a dog and flee?"

Ricardo stood squarely in front of him. "We'll be glad to—as soon as you drop this dowsing nonsense and return the watch."

"So you don't believe in dowsing," sneered Morris. "I'll just have to give you a glimpse of my incredible powers. They're going to make me famous."

With that, he grabbed a knapsack out of the truck. Next, he picked up a willow stick and took off across the field. The Bloodhound Gang

was in hot pursuit.

"Watch him closely," whispered Vikki. "He's bound to have that watch on him somewhere."

Morris wandered through the field with his willow stick for 15 minutes without success. He stopped for a moment, took off his knapsack and reached inside.

"Hold it Morris!" Vikki warned. "I know you won't mind if I examine that."

Morris gave her his biggest smile. "Go right ahead. It's only a thermos of iced tea."

Vikki opened the bag. Morris was telling the truth. All the bag contained was a thermos filled with crushed ice and tea.

Morris filled a cup and drank some tea. He seemed to be stalling for time.

"Vikki, maybe we've been following him too closely," Skip whispered. "I'm going to play a little trick on him."

And then Skip fell flat on the ground. "Help!" he yelled. "It's heatstroke! Give me something to drink, quick!"

Now Morris was beaming. "Gladly," he said. "Here, have some iced tea."

Morris poured more tea from the thermos and passed the cup to Skip. Then he slowly put the thermos back into the knapsack.

"Quick, get me a doctor, get me an insurance salesman, I'm dying," Skip moaned.

"Hold it down," warned Ricardo. "You'll give yourself away."

#### A Timely Solution

Suddenly, Morris jumped up with his divining rod. "Hold on, this stick is going crazy!" he yelled. The rod began to quiver like a rattle-snake's tail. Morris could hardly control it. Then the rod pointed directly at the ground and stopped moving.

Morris bent over, then stood up and smiled. The watch was in his hand.

Vikki ran over to look at it. She took the watch from Morris. Something was strange—the watch wasn't wet, but it was extremely cold. As she handled it, beads of water began to condense on it. Besides the water gathering in little drops on the watch, something else struck her as strange. The watch was still ticking.

Morris looked as though he'd just batted a

home run. "See I told you I had the power. I'm going to be a world famous dowser soon."

Vikki smiled. "Good try, Morris—but not good enough," she said. "Next time, don't hide the watch inside the thermos." She pointed to the beads of water. "See that? The watch was cold from being inside the thermos. When the watch came into contact with the hot air, water vapor from the air cooled off and formed water drops on its surface."

Morris's jaw dropped. "But you looked inside the thermos. How could I have hidden it there?"

Vikki walked over and picked up the thermos. "You're right. I looked inside the thermos. But only the top side. I forgot that you can unscrew the bottom."

Then she took off the bottom of it and dropped the watch inside. It fit perfectly.

"Oh, one more thing," she said. "The next time you try a trick like this, use your head. Don't wind the watch for goodness sake. This watch was lost Monday. It would have stopped running by Tuesday or Wednesday at the latest."

Vikki returned the thermos—without the watch. She joined Ricardo and Skip.

Skip was still going at it. "Oh my head, I feel dizzy...Is that you, Mom?"

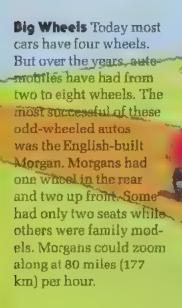
"You can quit all that acting now, Skip," Vikki said. "I got the watch back."

"Acting? Who's acting?" he replied. "Oh, my head, it's pounding. I'm not a well person. Just remember me when I'm gone, won't vou?"

Vikki and Ricardo looked at each other. Then Vikki picked up the cup of iced tea and poured it over Skip's head. "Here's a real dousing," she laughed.



## List of the Month



fastest vehicles on the road. In 1899, the Jamais Contente (French for "Never Satisfied") broke the world's speed record by going 69 miles (110 km) per hour! But life in the fast lane was hard. The electric betteries had to be replaced after each high-speed run. Later, battery problems caused other electric cars to lose the popularity race to gasoline-powered autos.

They Steered with Their Feet People usually steer a car with their hands and brake with their feet, right? But not if they were driving the 1904 Roller! It had two foot pedals instead of a steering wheel to control speed and braking. But that wasn't the only strange feature of the Roller. You couldn't take friends for a ride—it could only seat one!

#### The Little Car that Could

What car proved its power by climbing New England's highest mountain? The steam-engine Stanley. In 1890, it climbed a steep, 10-mile road up New Hampshire's Mt. Washington. It was the first car ever to reach the top. Stanley Steamers were considered quiet, smooth riding, and fast over short distances. Best of all, Stanleys were terrific on hills!



More than 5,000 different makes of cars have been built since the first horseless carriage. Here are stories about eight of them. So fasten your seat belts!





Where can you watch a koala or listen to a cuscus? In Australia, where the animal names are as strange as the animals.

The weirdest thing about Australia's animals isn't their names, though. It isn't even the way they look. What's really weird is that most of them can't be found anywhere except Australia.

That fact used to puzzle people. What is so special about Australia, they asked? Why does that huge island in the Pacific Ocean breed such odd animals?

To help solve the mystery, scientists who study the earth looked back 200 million years. They say the earth's surface looked very different then than it does now. All of the land was connected in one piece. Over the next few million years, it broke into many pieces. Gradually the land drifted apart to form the continents and oceans we know today.

Way back then, the animals living on Australia were still very primitive. Most were mammals called marsupials (mar-SOOP-e-ulz). These animals have pouches on their bodies, like kangaroos. Females carry their young in the pouches until the babies are fully developed.

Little by little, mammals in the rest of the world changed. The adults began to carry their

young inside their bodies until they were developed. These mammals replaced marsupials in many places. But that never happened in Australia. The marsupials there were so separate that they developed in their own way. The same thing went for some Australian lizards and birds.

Australian animals stayed apart for many years. Then people came to the island-continent bringing animals strange to Australia—like rabbits, dogs and sheep. They competed with the native Australian animals for food and space. Sometimes people hunted the native animals for their fur or for fun. Many of them were killed.

Today, Australians are protecting their special animals from harm. You can read about Australia's weird living wonders on the next few pages.

#### 4000

This koala is having a bit of its favorite, and only, food —eucalyptus leaves. Koalas spend practically their whole lives eating and sleeping in the branches of these Australian trees. They don't even drink water, because they get all the water they need from the juice of eucalyptus leaves. People used to hunt koalas for their soft fur. Now the koala's biggest enemy is a wild dog. People only "hunt" koalas with cameras.

Kangaroo

You don't want to challenge these kangaroos to a game of giant steps. That's
because a full-grown gray kangaroo can
hop 25 feet! Kangaroos push off with their
powerful back legs when they want to hop
around. Thair long tails give them balance
as they move along. You might not think
hopping could move a roo very fast. But
kangaroos can hop at more than 30 miles
an hour. That's really hopping to it!

#### Moloch

This lizard spends most of its time buried in desert sand. But right now, it is searching for its favorite meal—ants and termites. When the moloch finds dinner, it will flick out its tongue and scoop up a bunch of the bugs. In fact, the little critter can gobble 5,000 ants in one meal.

A moloch might be handy to have at a picnic!







Spiny Antegter

This spiny anteater is sniffing out its favorite meal—ants and termites. When it finds the bugs, it laps them up with its long tongue. If the anteater wants to get away from its enemies though, it doesn't run. It pulls in its head and feet and rolls up in a ball—a ball with sharp spines sticking out on all sides. Most other animals get the —um— point!



#### Cuscus

Meet the cuscus-Australia's version of the monkey. This cuscus is sitting on all fours. But its favorite position is hanging from a tree by its long curly tail. Cuscuses love to eat fruits and leaves. But because they do their munching at night, they're not easy to spot. If you follow your nose though, you might sniff one out. The cuscus has a strange smell that gives it away-even · when it can't be seen.

## **Platypus**

Swimming along with the greatest of ease is one of the world's strangest-looking animals—the platypus (PLAT-a-puss). It has the bill and feet of a duck, the tail of a beaver, and the body of an otter. The platypus stays underwater a lot—but it can also live on land. Its favorite foods are shellfish, worms, and insects. Yuck!







#### Emu

Now here's a flock of really big birds! Emus can grow to be five feet tall and weigh 200 pounds. In fact, the emu is Australia's largest bird. And in the rest of the world only the ostrich is bigger. Unlike most other birds, emus don't fly. They use their broad, flat bills to pick up insects and plants as they walk along the ground.

Lyrebird

The lyrebird's most striking feature is its long tail. When the tail feathers are open they look like an instrument called the lyre. But even more unusual is the way the bird sounds. The lyrebird imitates the sounds of other birds, animals, people—even car horns. So if you're ever in Australia and hear a cow's moo coming from behind a bush, it could be a lyrebird doin' the mooin'!

# Coming Littractions



#### Will You Live in a Cardboard Home?

Rapunzel lived in a tower. And the three little pigs lived in homes made of brick, wood, or straw. But few people can top this: a home made of cardboard. Yet that's what future houses may be made of.

The special cardboard is hard, cheap, and strong. Each piece is only three-eighths-inch-thick. Four to six different chemicals are sprayed on each piece of board. (One of these chemicals helps prevent fire.) Each piece is sent through a 354-foot tube in which temperature and humidity are kept constant. All this helps make the cardboard strong.

For instance, a cardboard pier has stood up to rough seas. Cardboard truck bodies have traveled over rough roads.

But the most important use for the cardboard may be just getting underway: homes. The houses are fairly easy to put up. The panels for each house come already wired and painted. The frames for the windows are already cut out. All you need to do is put the building on a concrete base. Presto! Instant home!

#### Mirror Mirror on the Roof

A solar engineer hopes to use a 4,000-year-old idea to light future buildings. The people who built Egypt's pyramids needed to see what they were doing while they were working inside the pyramids. Instead of using smoky torches, ancient people used shuny bronze shields to reflect daylight deep into the tombs.

Claude Robbins, of the Solar Energy Research Institute, wants to use a similar idea to light the insides of buildings. Mr. Robbins explains that daylight only reaches 25 feet inside a building. The rest must be lit by electricity. And this can be expensive.

Mr. Robbins suggests placing two mirrors on the roof of a building. One is movable and follows the sun's path across the sky. The other is fixed in place. The moving mirror reflects the sunlight onto the fixed mirror. The fixed mirror then shoots a beam of light down a shaft that passes through each floor.

Mr. Robbins says his mirrors could save billions of dollars a year in energy costs. He hopes they will soon be in skyscrapers, hospitals, schools, and stores.





#### **Bucking for a Change**

That paper money you use may be changing. And if it does, you can blame it on the wonders of today's advanced technology.

The U.S. government is worried that people may be copying
paper money. The crooks use
photocopying machines to run
off exact copies of the real bills.
The machines even copy in
color. And they copy so well that
some people have been tricked
into accepting the phony stuff as
the real thing.

So now the U.S. is looking into ways to stop this new type of cheating. Here are some ideas:

- Put microchips in the bills.
   That way, a computer could "read" the money to see if it is fake.
- Use magnetic threads in the paper. The threads would work like a small tape recorder. A special machine could "play" the money. Just think of a dollar bill talking to you. It might say, "This bill is real."
- Make the pictures on the bill three-dimensional. The picture would change as it moved. This would make the money very difficult to copy.

So far, the U.S. hasn't decided what—if anything—to do about the problem. But in the future, your money may be live-wired. And that will certainly take a "byte" out of crime.

- Alijandra Mogilner



#### He's a Winner!

Some people can pig out on hot fudge sundaes and never gain an ounce. Other people can eat very little and still gain weight. Now, thanks to Christopher Montanaro, scientists think they may have some clues to why people burn up fat faster than others. And it may lead the way to easier weight loss.

Christopher, 17, of South Paris Maine, is the first place winner of the Westinghouse Talent Science Search. The high school senior studied how mice burn up fat in their bodies. Scientists say Christopher's experiments can give important clues to how humans do the same.

For his work (most of which was done over summer vacation), Christopher won a scholarship to college—and to a great start in a science career.

#### Artists in Space!

In the near future you won't have to be an astronaut to go up in space.

NASA—the U.S. space agency—is looking for civilian passengers to take a trip in the space shuttle. The first passengers may start orbiting as early as 1985. Writers, reporters, and artists will be given first crack at the seats.

NASA thinks that astronauts are too busy working and flying the craft to describe what they are seeing. NASA hopes that writers and artists can better tell people on earth what it's really like up in space.

But it won't be just a joy ride for the civilian passengers. They will be assigned small jobs on the mission. "I think we'll try to make practical use of them in helping the astronauts. They may tend the galley or do things like that," says one NASA official.

Coffee, tea, or space walks, anyone?

#### Humans 2, Housefiles 0

There's good news for humans and not-so-good news for houseflies, stable flies, fleas, and fire ants. A new chemical is being developed that will knock off these pesky creatures—but is thought to be perfectly safe for humans, animals, and the environment. And you probably have the killer right in your kitchen—or maybe even in your lunchbox. It's citrus oil from orange peels.

Whenever some types of bugs get close to the oil, they drop like —flies. Even buzzing around the oil—without touching it is enough to do the little buggers in.



#### The Cat's Meow

The kittens of today will be the adult cats of tomorrow. And to help turn a cuddly kitten into a friendly adult cat, try stroking it.

In a recent study, petting kittens who are three weeks old for 15 minutes a day seemed to lead to friendlier cats.

# Coming Attractions

#### But Can You Mash It?

Will your future clock run on potatoes? It will if Bill Borst has his way. Mr. Borst, an engineer, has built a digital clock that runs on potato power. He got the idea while helping his daughter Heather come up with an exhibit for her school science fair.

The Borst clock runs on two potatoes. Each has a pair of metal bolts that are wired to the clock. One bolt in each pair is made of zinc. The other bolt is made of copper. The two metals react with the natural acid in the potato. This causes a chemical reaction that gives off electricity.

Mr. Borst reports that the potato clock goes dead in just four weeks. But it's a start in the right direction. The clock also works with apples, oranges, lemons, tomatoes, and onions. "But potatoes are the best," Mr. Borst says. "They stay fresher longer at room temperature than the other fruits and veggies."

It's possible that if Mr. Borst whips his potato clock into shape, you may be buying batteries by the pound. What an a-peeling idea!





#### Space Invaders Hit Dentist's Office

Someday you may look forward to visiting the dentist. That's true today for patients of Dr. Arthur Zuckerman of New York City. They are delighted every time they get a cavity filled. That's because the dentist lets his patients play video games while he works on their teeth.

A TV monitor is attached to the ceiling above the dentist's chair. To work the game, patients hold a joystick in their lap. An earphone lets them hear all the sound effects.

"Dentists know that they can make patients more comfortable and less nervous by giving them something to do," Dr. Zuckerman explains. "I use video games."

Says one of Dr. Zuckerman's patients, "I get so excited playing the game, I forget where I am!"

#### Forget It!

If you're the kind of person who is always losing something, a new gadget may be just for you. It won't let you lose anything.

The invention works with a

transmitter and a radio receiver. First, you attach a tiny receiver to anything you are afraid of losing—a wallet, for instance.

If you should lose the item, just flick on your radio transmitter. The transmitter can be switched to several different channels. Each channel matches a different receiver. So to find your lost wallet, just tune the transmitter to the wallet channel. You'll hear a whistle coming from your wallet. Go to the sound, and there's your lost object

The invention sounds great except for two things. It only works within a small area. And if you lose your transmitter, you're in big trouble!



#### So What's New?

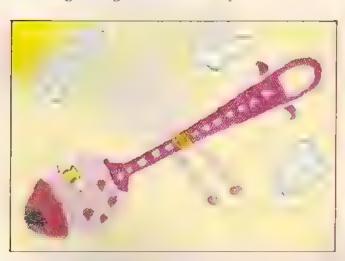
You tell us and you'll get a nifty CONTACT T-shirt if we print your story. Send us any science stories that have to do with the future (which could even be next week!). Send stories to:

Coming Attractions P.O. Box 599 Ridgefield, NJ 07657

Foncy Flyers Winners Last November we asked you to dream up some far-out flying machines



Matthew Freeman, New York, NY The Winged Burger runs on ketchup.



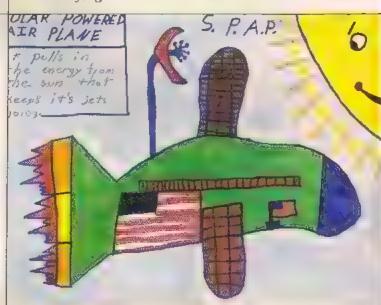
Sol Flores, Chicago, IL The Flying Heart is shaped like a giant spoon.



Here are some of our favorites:



Heather Ramsdale, Rome, NY The Flying Wind Traveler sails on the breeze.



Thomas Reed, Hudson, NH This plane's jets are fueled by solar energy.

#### CONTACT Flake-Off Winners

In our December/January 1984 issue, we asked you to find three snowflakes hidden in the magazine They were on pages 3, 8, and 18. Here are the winners—picked at random.

Jennifer Lynette Moran, Alder, MT Tonia Nagel, Metamore, MI Steven Thompson, Dayton, OH Robert Zebro, New City, NY Maureen Reynolds, Agawam, MA

Terri Eggleston, Wichita Folls, TX This future plane has eves that see 200 miles.



#### by Rebecca Herman

You're almost finished, but not quite. There are more games, puzzles, tricks and other surprises in this Extra! Keep reading

#### **Animal Hunt**

What's the only place in the world you can find a koala? If you read the story on page 24, you know the answer is Australia.

Here's your chance to hunt for 14 Australian animals. Circle the words in capital letters. Words can go in any direction. When you're done, find the answer to this question: How long has the dingo been living in Australia?

Go from left to right, Write down the uncircled letters. Then you'll know!

Answer on page 35.

CASSOWARY **CUSCUS** DINGO **ECHIDNA EMU** Fairy PENGUIN KANGAROO

DWWEMLA YOAWES NSUNBLNOSM GSBGAFDMUA UOAOLVIBON IWKELTHASI

PLATYPUS WALLABY NAOHAOCTUA WOMBAT UROSWAENCN DYKANGAROO

KOALA KOOKABURRA TASMANIAN Dev Tasmanian WOLF

#### Saving Sneezes

You can find out about sneezes in this month's Any Questions? If you want to stop a sneeze from sneaking up on you, use these tips.

- Press a finger on the space between your mouth and your nose. At the same time, press up -against your nose.
- Tickle the top of your mouth with your tongue.



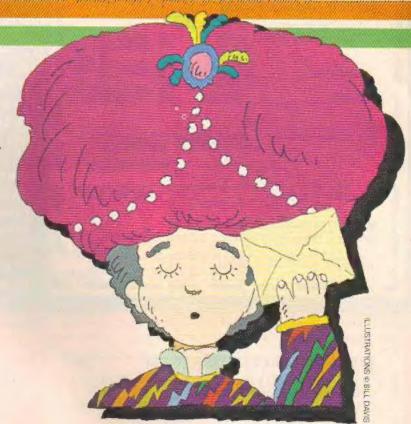
#### **ESP Magic**

Do you believe in ESP? You can have your friends thinking that you are a real mind reader with this trick. All you need is paper and pencil.

Tell your friend, "I can read your mind. I will guess a number you are thinking of between 10 and 50." Then tell your friend to:

- 1. Write down the number.
- Multiply the number's first digit by 2. Write down the answer.
- **5.** Add 5 to the new number. Write down the answer. Now multiply that answer by 5.
- Now take the original number. Add the second digit in that number to your total.

Ask your friend, "What's the grand total?"
Write that down. Subtract 25 from the answer.
The number you get will be the one your friend started out with. Tell her the number. Then watch her be surprised!

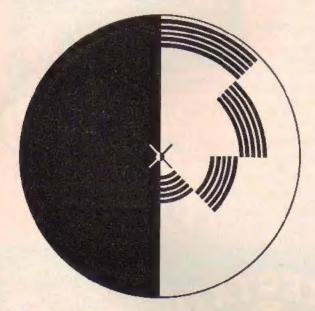


#### Now You See It

If you were a dog, this circle would look black and white no matter what. Luckily, you are a person! So you can turn this wheel into a wheel of color!

First cut out this circle. Then put the circle on the end of a pencil. Twirl it rapidly between your hands. Watch the wheel spin.

Do you see colored rings? If not, try spinning it faster and see what happens. Sooner or later you should see colors. Your eyes start to play tricks on you. You see an optical illusion.



#### 3-2-1 Contest

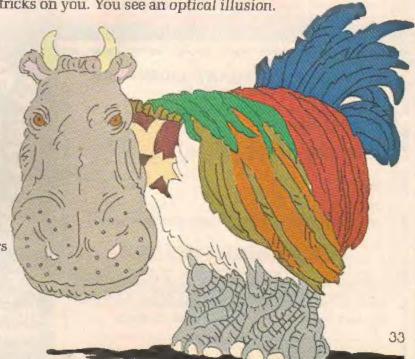
When people from Europe first saw the animals of Australia, they must have been surprised. Now you can surprise us. Write a story about a strange make-believe animal. Tell us what it looks like, what it eats and where it sleeps. What would you name it? Make sure to include a picture.

We'll pick our favorite creatures. The winners will get CONTACT T-shirts. Write to:

3-2-1 Contest: Creature Feature

P.O. Box 599

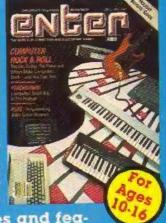
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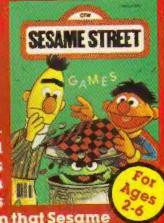


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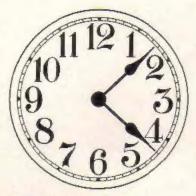
and educational for beginning and young readers. Enjoy ten colorful issues filled with puzzles, posters, cut-outs, Spidey super stories, jokes...and sunny smiles.

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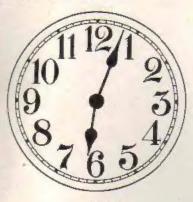
#### Clock Puzzle (page 2)



These numbers go the wrong way.



The hour and minute hands are the same size.



Correct!



The "one" in the number 10 is upside down.



Some of the small notches or minute marks are missing.



The numbers are not in their correct places. (This clock starts at 1.)

#### Animal Hunt (page 32):



The answer to the question is: TWELVE THOUSAND

#### Having a Ball (page 36)

There are 7 heads but 11 hands!

#### Next Month!

Here's a sample of what you'll find in the next issue of 3-2-1 CONTACT:

#### High-Flying Firefighters!

Meet some people who parachute out of planes to fight fires in the wilderness.

#### **Weird Wonders**

CONTACT takes a look at an ancient mystery and what it may mean.

#### What Are Kids Saying?

CONTACT talks to kids about their fears and how to deal with them.

Plus Any Questions? Puzzles, and More!



#### Having a Ball

These kids are swimming without getting wet. They are finding out about liquids, too.

The kids are in a "pool" of 180,000 hollow plastic balls. On the bottom is a trampoline. When a person moves, all the balls move past one another. They are acting like giant molecules of liquid.

Everything in the world is made of molecules. Real ones are so small, it would take millions of them to fill the dot of this i.

Now here's a mystery. Something in the photo doesn't match up. Give us a hand and figure out what it is. (The answer is on page 35.)

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